ENVIRONMENTAL PROTECTION AGENCY

REGION II

DATE:

SUBJECT: External Well Casing Decision for Well No. 110
(Port Washington RI/FS)

FROM: Edward Als, Remedial Project Manager
Eastern New York/Caribbean Remedial Action Section

TO: File

During the week of February 16, field geologist Eric Weinstock presented the following problem to EPA concerning well No. 110, which was about to be drilled adjacent to newly developed well No. 106 (see work plan). Because of substantial (20-30ppm) OVA readings encountered during the drilling of well No. 106 at the 100-150 foot depth range, Eric reasoned that this contamination could be spread by drilling muds throughout the borehole for well No. 110. Since well No. 110 will be a very deep well (approximately 400 feet), and the initial hypothesis for this site is that groundwater contamination exists as a relatively flat plume near the surface of the water table, any samples from well No. 110 that indicate contamination could create the suspicion that drilling muds not completely purged during development had created the contamination by transporting it from the upper contaminated layer and spreading it deeper into the Magothy Aquifer. To guard against this possibility, Eric suggested that an external well casing be driven to a depth beyond the contaminated zone, drilling muds replaced with new muds, and drilling completed using the new contaminant-free muds.

After consulting with Grant Kimmel, I rejected the suggestion for the following reasons:

1) Proper development of the well is expected to remove all muds and contamination from the borehole. Migration of contaminants outside the borehole during drilling is not expected to be significant, because of the borehole - sealing effect of bentonite muds.

2) Any contamination that occurs in the borehole will be diluted along the entire volume of the borehole, thereby reducing the concentration of any contaminants that are carried down to the potential well screen area.

3) The contamination is most likely methane gas with possible trace amounts of hazardous organics (chlorinated and aromatics). This assumption is consistent with the results of previous sampling of monitoring wells in the area. Low HNU readings (non-methane) also support the assumption.

Use of the casing will occur only if drilling muds are being lost in some very permeable formation, such as occurred during the drilling of well nos. 105 and 106.

cc: Eric Weinstock, CDM
William McCabe
Grant Kimmel